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Suresha G.



■ Union Budget 2023-24

■ "Scrap usage in primary steel production to grow from 15% to 50% by 2047" –

Shri Jyotiraditya Scindia at IMRC 2023

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Editorial Desk



D. A. Chandekar
Editor

Dear Readers,

I had said in my last piece that the Indian steel industry has learnt to survive and grow despite of Ukraine - Russia war and overall recessionary trend in many parts of the world. This is mainly because of the growing consumption in the country and less dependence on overseas trade. India's GDP growth rate is the highest among the large economies and all the major international monetary agencies have predicted a decent GDP growth rate of more than 6 % for the fiscal 2023-24. This means that Indian economy would grow faster than China, the US and also the other major countries having large sized economy.

Recently the union finance budget was announced by the Indian Finance Minister Nirmala Sitaraman. It has more than 30 % more outlay for infrastructure development, a big provision for the development of Railways and also numerous schemes for MSME sector. Thus it was perceived that the budget will give a forward push to the economy and was very well received by the industry. The steel fraternity thought that the enhanced outlay for the infrastructure and development of

railways is sure to translate into huge steel demand. This will not only ensure a sustained growth for steel producing companies but also create jobs, direct as well as indirect. Further, the development of railways, apart from creating steel demand, also includes its modernization program. We can expect a more efficient and modern railway service in coming years. MSME is supposed to be the backbone of any economy. The budget promises to strengthen this crucial sector and improve its bottomline and viability. We all know that MSME is the biggest job creator in any economy and if it is healthy and growing, it can give a big boost to the economy wheel. Also a lot of fund has been allotted to logistics development. This will also directly benefit iron & steel sector as the logistics plays a very important and major role in this industry. To produce a tonne of steel, three tonnes of raw materials have to be moved. Thus the total transport requirement per tonne of steel is around four tonnes. Thus it is natural that all the major trade bodies and also the major steel business houses have wholeheartedly welcomed this union budget.

Overall, the fortune seems to be favouring Indian economy and also Indian iron & steel sector. Here I would again like to mention that infrastructure development occupies majority of space in any economy's growth and the steel sector is at the centre of the infrastructure development. Thus 'India's Growth Story' can not be completed or fully achieved without a strong support from steel industry. So friends, it is time to work hard and achieve a sustainable growth, for ourselves and also for the country !

Write your comments :
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“ArcelorMittal Nippon Steel India produces high-quality pellets to manufacture Smarter Steels”

- Suresha G.

“We, at AM/NS India's Odisha operations, are focused to produce high-quality iron ore pellets that are integral to manufacturing smarter steels while maintaining an exemplary level of Health & Safety conditions for the workforce.”

Suresha G, Executive Director, ArcelorMittal Nippon Steel India Ltd.

Suresha G, Executive Director, Odisha Operations, ArcelorMittal Nippon Steel India (AM/NS India)

Suresha G heads the Odisha Asset at AM/NS India comprising a 12 MTPA Pellet Plant at Paradeep, a 12 MTPA Beneficiation Plant at Dabuna in Keonjhar, and a 253 km Slurry Pipeline from Dabuna to Paradeep. These hold the distinction of being the largest pelletisation complex, beneficiation plant, and slurry pipeline in India.

Since joining AM/NS India in 2021, Suresha has been instrumental in driving the company's growth through the implementation of new policies and strategic initiatives. Under his able leadership, the company has been implementing multidimensional

sustainable social development programmes in the areas of quality mass education, community healthcare, and promotion of ethnic sports at its operating locations in the state. These initiatives have aided in the holistic development of the quality of life of the local communities. Under his stewardship, the Odisha facility has won several awards and accolades.

An Electronics and Communications Engineer with MBA in Operations Management, Suresha started his career with the Kudremukh Iron Ore Co. Ltd., followed by Kobe Steel as Project Controller and then moved to Jindal Steel and Power Ltd. at Barbil as Business Head and Executive Vice President.

D A Chandekar, Editor & CEO of Steelworld had an

exclusive interaction with Suresha G, Executive Director, AM/NS India, to understand more about the Odisha Asset's working, strategy, and future expansion plans.

Excerpts:

Q1) What are the activities undertaken at AM/NS India's Odisha Asset?

We are focused on producing high-quality iron ore pellets that are integral to manufacturing smarter steels while maintaining an exemplary level of Health & Safety conditions for our workforce. At AM/NS India, Health and Safety is of supreme importance and our number one priority. Operating in India for the last three years, AM/NS India's goal is to produce smarter steels with a promise of creating brighter futures for all our stakeholders. We employ superior technology, robust processes, and sustainable practices in



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our operations to deliver long-term value.

In Odisha, AM/NS India currently operates a 12 MTPA pellet plant - the largest single location pellet complex in the country and a 30x2 MW power plant at Paradeep, two iron ore mines (Sagasahi and Thakurani), a 9 MTPA Beneficiation Plant at Dabuna in Keonjhar and a 253 km dedicated Slurry Pipeline from Dabuna to Paradeep. All these facilities are vital to the company's overall operations and important milestones towards the goal of achieving self-sufficiency.

A continuous supply of iron ore concentrate through slurry pipeline operations is essential for the manufacturing of pellets. Any slowdown or stoppage will adversely affect the steel manufacturing operations and ultimately EBITDA.

The pellet plant

manufacturing complex along with the slurry pipeline and supply of fines plays a vital role in raw material linkage and we are putting in a lot of effort to ensure that the Odisha asset becomes synonymous with 'reliability', 'stability', and 'sustainability' through the incorporation of artificial intelligence.

The low-grade iron ore fines quality on one hand and sustaining the consistency in pellet quality on the other is one of the major challenges for us. The optimum solution is to find the equilibrium point which can be achieved by the introduction of artificial intelligence where the system can measure, predict, forecast, and suggest solutions to achieve the desired outcomes. The system-derived solutions will contain all the reference parameters which are to be maintained in the process to get the desired output. The incorporation of high-end

automation helps to manage overall quality, enhance productivity, minimise waste, improve efficiency and establish a process balance.

Q2) What are the new policies & strategies implemented under your leadership & how have they benefited the company?

Occupational Health & Safety is our topmost priority. As per set priorities, we continuously focus on the overall improvement of the Health & Safety index by introducing various behavioural-based sessions, cross-functional shop floor audits, and various rewards & recognitions. We constantly endeavour to identify various bottlenecks about unsafe conditions and practices and do brainstorming to minimize human intervention through automation. As endlessly creative is one of the mantras for our success, we encourage the entire workforce to provide innovative suggestions for

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Face to Face

overall improvement, accept and implement many innovative and dynamic suggestions and reward them through an automated system where transparency is the key factor for driving the system.

Q3) Please share your vision & strategy for digitalization.

As I mentioned, our goal is to produce smarter steels for brighter futures. This guides us to ensure that our plant operations leave a sustainable, social, environmental, and economic legacy. AM/NS India is working on the potential application of non-wet or reduced moisture tailings disposal methodologies such as thickened, paste, dry stack



and in-pit tailings options wherever appropriate. We encourage furthering the digitalization of processes across all our work streams because it brings efficiency and speed, thus playing a pivotal role in business transformation. We are in the process of identification of bottlenecks in the system and developing solutions through digitalization. Some

of the critical areas we have already covered, and some are in the experimental stage.

From a business perspective, we are in the process of creating end-to-end digitalization. Some of the areas we have already covered include sales, marketing, and process optimization. Now we are into logistics digitalization where we want to conceptualize a just-in-time concept.

Q4) How do you see the future of the steel industry in the country? What are your future expansion plans?

The year 2022 was an eventful one for the Indian steel industry. The Russia-Ukraine war, which erupted in February, changed the

trade headwinds which swung the prices of several key raw materials to record highs. Global demand was hit badly by the war, which kept prices down for the better part of the year. The export tax imposed in May 2022 exerted more pressure on the industry, which has already been operating under squeezed margins. The year was characterized by a

sliding rupee and inflation, although India remained better insulated against global geopolitical dynamics. Cheap imported hot rolled coils gave mills cause to worry amid low domestic prices.

But the highlight was India's crude steel production which made it stand out among all steel-producing countries, despite its intermittent production cuts, proving that demand was subdued-to-moderate throughout the year. Output rose 6% to around 124 MT as against 117.63 MT in 2021, which demonstrates the industry's resilience. The Indian steel industry must maintain an 8 % growth rate to achieve a production target of 300 MTPA by 2030.

As far as AM/NS India is concerned, we are an integrated flat carbon steel manufacturer - from iron ore to ready-to-market products. With an achievable crude steel capacity of 9 million tonnes per annum (MTPA) and a pellet-making capacity of 20 million tonnes, the company's manufacturing facilities comprise ironmaking, steelmaking, and downstream facilities spread across India.

The company plans to expand its steelmaking capacity at the flagship plant in Hazira, Gujarat, from 9 MTPA to 15 MTPA with an investment of Rs 60,000 crore, establish a 12 MTPA integrated steel plant in Kendrapara, Odisha, and a 7 MTPA integrated steel plant in Paradeep with beneficiation facilities and slurry pipelines, for which preparatory work is in progress. ■

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Union Budget 2023-24

Reactions from the Industry Veterans



Dilip Oommen, President of Indian Steel Association, and CEO of AM/NS India and Executive Vice President of ArcelorMittal-



"A progressive 'Saptarshi' Budget – the first in

AmritKaal – has hit the right notes to fuel growth across industries and propel India to become a global manufacturing hub. A significant 33% increase in capital expenditure to Rs 10 lakh crore – 3.3 % of the GDP, thrust to fast-track infrastructure development, and the highest ever Rs 2.40 lakh crore for railways will translate into robust domestic steel demand, thus spurring private investments and job creations. First and last-mile connectivity for sectors like steel, ports, coal, etc. With an investment of Rs 75,000 crore will improve

logistics efficiency. This Budget is focused on growth and improving consumption. At the same time, there is a focus on the green economy and digitalisation. Reforms are on the right trajectory of fiscal consolidation to reach the targeted fiscal deficit level below 4.5% by 2025-26. The Budget underpins a long-term plan that shows the right path to drive economic revival at a time when advanced economies are facing a tough time."

Bimlendra Jha, Managing Director, Jindal Steel & Power Limited (JSPL)-The government has continued to put focus on infrastructure and

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construction with a budgetary allocation of Rs 10 lakh crore. This augurs well for the steel and cement industry. These industries will also gain from the focus on rail and transport infrastructure projects as well as budgetary allocation to improve urban infrastructure in tier 2 & tier 3 cities.

Soma Mondal, Chairman, SAIL-“The union budget for



Financial Year 2022-23 holds promise for faster economic development putting the Indian economy on a still higher trajectory of growth. The budget envisages higher Public investment and capital spending by the Government. There is a direct focus on intensifying the infrastructure developmental activities

through the PM Gati Shakti Programme with seven engines of growth, focus on Highways network, PM Awas Yojna in rural and urban areas, Har Ghar Nal Se Jal scheme, etc. The additional focus on the MSME sector will also trigger enhanced economic activities. These efforts are sure to have a positive impact on the overall economy and it augurs well for the steel sector.”

Sajjan Jindal, Chairman, JSW Group- The government has been giving a huge push to the infrastructure



upgradation of our nation and an increase in spending on road and rail infrastructure is a testament to their philosophy. “The scheme to support central and state governments and municipalities in replacing their old polluting vehicles is another master stroke. This will give a boost to the manufacturing sector which is largely driven by the auto industry.”

T. V. Narendran, Managing Director, Tata Steel - Budget 2023 has been great, it has given us all we had asked for and more. The focus on infrastructure, whether it is overall infrastructure capex



at the central level or the state level which is being encouraged or the focus on railways, I think that is very crucial. I also think a lot of action on rural economy, agriculture will hopefully prop-up rural consumption which has been slow over the last few months. The action on taxes are also likely to spur consumption. Focus on tourism is great for the service industry. So overall anyone would be happy with this budget, all the asks have been granted in some sense.”

Anil G Verma, Executive Director & CEO, Godrej & Boyce- “This is a balanced and



inclusive budget which will provide further impetus to growth. The renewed thrust on investment in infrastructure will drive the productivity of our economy and generate

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employment. Our competitiveness in the global economy will also be improved through the thrust on research in fields like 5G services, AI and agriculture. Together with the initiatives to reduce the compliance burden and de-criminalise several regulatory provisions, it will improve the ease of doing business in India and attract fresh investment. Measures to improve rural incomes and reduce personal income tax rates will deliver more disposable income in the hands of people, driving consumption. This will likely generate a virtuous cycle of fresh investments leading to higher employment, incomes and productivity, further spurring consumption. The Green growth focus will orient the entire economy towards adopting sustainable practices in all areas and put us in a good position to play our role in the efforts to improve the future of our planet. The key to realization of the planned outcomes is effective implementation.”

Manish Bhatnagar, Managing Director, SKF India Ltd. - “The budget is progressive and growth-oriented given the focus on capital expenditure, green mobility, clean energy, and agriculture. It further defines the roadmap for achieving net-zero emissions by 2070. At SKF, we support India’s aspirations of inclusive and sustainable growth, and we remain committed to achieving net-zero



emissions across all our production facilities by 2030 and across our supply chain by 2050. We will continue to develop intelligent and clean products and solutions to meet the evolving needs of industries and further support their decarbonization efforts. Further, the budget will also help the Indian economy reap benefits from local manufacturing, infrastructure development, and technology advancements and will firmly position the country on the path to accelerated growth.”

Baba Kalyani, Chairman and Managing Director, Bharat Forge Ltd. -



Government policy formulation is a consultative process and the successive

budgets including today’s is a strong reflection of this process, aimed at promoting a virtuous cycle of growth and employment. Significant and sustained push on Infrastructure spend, Railways, Green Technologies and Defence is a welcome measure. Overall direction to take India on the trajectory of a technology-driven and knowledge-based economy coupled with productive capital investments will have long-standing benefits in driving inclusive financial growth and enhancing per-capita income levels.

Raghunath K, Country Representative, thyssenkrupp India- The Union Budget 2023-24 builds a strong foundation



for the future with a focus on clean energy in India. It reflects the government’s continued push towards sustainable growth and energy transition. The target for green hydrogen production, viability funding for 4000 MWh battery storage energy system and the renewable energy evacuation plan for the union territory of Ladakh clearly demonstrates this intent to incentivise energy transition. The plan for setting up 200 compressed bio-gas plants and 300 community and



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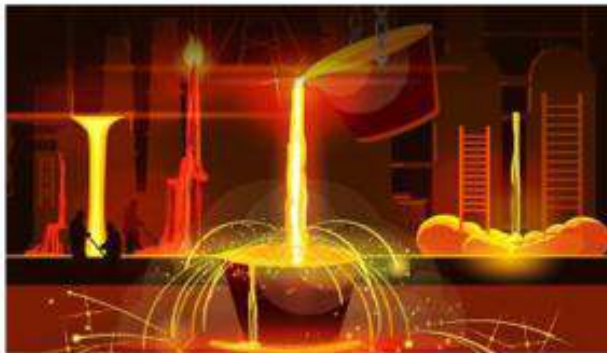


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View Point

cluster based biogas plants, also demonstrates its willingness to look at all opportunities for building a sustainable ecosystem. Additionally, the centres of excellence for research and the government's firm determination to lead the way in new technologies like AI/ ML is also crucial for India to climb up in the global innovation ladder and build its future using new technologies.

Union Budget 2023, announced the Government of India vision and support towards a carbon-neutral economy has been appreciated by the recycling industry.

In a big boost for taxpayers and the economy, Sitharaman announced major changes in tax slabs under the new tax regime and a big hike in allocation for railways and capital expenditure will certainly enhance the demand for the recycling industry as a whole. It also reflects the strong commitment of the Union government to boost economic growth by investing in infrastructure development leading to an increase in capital expenditure by 37.4 per cent over the revised estimate (RE) 2022-23.

Material Recycling Association of India (MRAI) greatly appreciate the announcement to encourage the availability of raw

materials for the steel sector by continuing the zero per cent Basic Customs Duty (BCD) on secondary steel raw material of ferrous scrap, for the manufacture of CRGO Steel, and nickel cathode to achieve our green steel goal has been greatly appreciated, said by **Sanjay Mehta, President, MRAI.**

In order to ensure the raw material security of scrap for secondary steel, the FM announcement in the 2023 budget to replace the old polluting vehicles is an important part of greening our economy. In persistence

vehicles and ambulances as added by Mehta.

In addition to ferrous metals



announcement, "we also appreciate FM announcement for the concessional BCD of 2.5 per cent on copper scrap has been continued to ensure the availability of raw materials for secondary copper producers who are mainly in the MSME sector" added by Mehta.

"We also appreciate government support to promote sustainability agenda to enhance EVs mobility, customs duty exemption has been extended to the import of capital goods and machinery required for manufacturing of lithium-ion cells

batteries to boost domestic manufacturing, domestic value addition and green energy", as highlighted by Mehta. ■



of the vehicle scrapping policy mentioned in Budget 2021-22, FM allocated adequate funds to scrap old vehicles of the Central Government. The State Government will also be supported in replacing old

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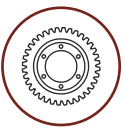
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"Scrap usage in primary steel production to grow from 15% to 50% by 2047" – Shri Jyotiraditya Scindia at IMRC 2023

The 10th edition of the International Indian Material Recycling Conference concludes in Kochi

Union Minister for Civil Aviation and Steel Shri. Jyotiraditya Scindia said that Central Government stands firm on its commitment to the material recycling industry, a sector that needs to be encouraged and pushed forward in today's world. Today the recycling industry contributes almost 10,000 crores to India's GST and in the years to come it is expected to go up by 35,000 crore. The Union Minister was speaking at the plenary session of the 10th edition of the International Indian

Material Recycling Conference organized by the Material Recycling Association of India (MRAI) in Kochi. "We are responsible as stakeholders for the generation that is yet to come, thus the material recycling sector is important," he said. Adding that India's journey to the Amritkal will be visionary, the Minister assured full commitment to the circular economy and recycling sector of India and increase per capita consumption of

Steel. He pointed out that 22% of our steel is produced through recycling, but we need to include the informal sector for the development of the sector as well and said, "For our commitment to Net Zero by 2070, we can look at short term goals by using energy efficiency tools by 20% by 2030."

Stressing that the steel industry is the sub-segment of the recycling sector, it must be at the forefront of adaptation and mitigation by joining hands with the principle of 6 Rs which



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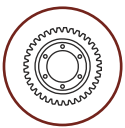
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Industry Update

include Reduce, Recycle, Reuse, Recover, Redesign and Remanufacturing. The Minister envisioned that these principles of the six R's must become the embodiment of every good corporate governance structure.

The Minister said that India under the leadership of Prime Minister Shri Narendra Modi has shown the world that it has the capability to be a visionary in its outlook, to lead where no other country had led before. Adding that there are plenty of examples including how we handled Covid, the International Solar Alliance, the Minister said there are many firsts in India's name. "On those lines, we are aiming for another leader in the sector of the circular economy including recycling."

Shri Scindia said steel is ideally best suited for the area of circular economy and the government is fully committed to the circular economy and recycling sector not only in India but across the world. The steel sector produces many forms of waste and the use of the waste across the world must be shown in multiple industries, he said. "We are working fervently on that goal," he added.

Referring to the vision of the Prime Minister for recycling and a circular economy, Shri Scindia recalled the Prime Minister's speech on Independence Day in 2021 that "men and nature can no longer be in a

conflictual relationship. They must co-exist together in a harmonious relationship." Shri Scindia added that the circular economy is the bedrock of this very



fundamental thought put forward by the Prime Minister.

Emphasizing the growth registered in the sector, Shri Jyotiraditya Scindia said in the last 8 years India has produced 25 million tonnes of scraps and bought 5 million tonnes. The production of steel was increased by almost 50% from 80 million per annum to 120 million tonnes per annum. "22% of our steel is produced through recycling. We must ensure that we should bring the informal sector to the formal sector as an amalgamation of that will give a new thrust to the recycling and circular economy sector," he added.

'Scrap' is a virtuous word that denotes a green

economy to sustain Mother Earth in the years to come. It is our commitment that by 2030 we should reduce CO₂ emissions by 50% and being able to do that scrap is an

extremely important source. The use of scrap not only saves energy and emissions but also saves the consumption of tonnes of iron ore, cooking coal, and limestone. With the Vision of 2047, today's 15% of scrap usage will increase to almost 25% in the next 5 years, which means the percentage of scrap for the production of steel should go up to 50%, with only 50% being dependent on iron ore, he added.

Material Recycling Association of India (MRAI) hosted the 10th edition of the International Indian Material Recycling Conference from 2 - 4 February 2023 in Kochi. This biggest-ever meet of global recyclers saw more than 1800 Delegates, including 450 Foreign Delegates from 38 countries. The conclave

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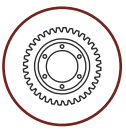
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created focussed on highlighting a deeper insight into maximizing the rate of recycling, protecting natural resources, minimizing environmental pollution, creating more employment opportunities, and helping achieve the sustainable development goal of India's commitment to carbon neutrality by 2070.

The event was also graced by Smt Ruchika Chaudhary Govil, Additional Secretary Ministry of Steel, and Dr. Harshadeep Kamble, Principal Secretary, Industry & Mines, Maharashtra State Government along with several other dignitaries. The 3-day event saw

multiple Panel Discussions like Plastic Recycling EPR Policy & BIS Standards, Policy Framework & Technological Advancement in Tyre Recycling etc.

The conference was attended by eminent international industry leaders, Govt. of India Officials from Ministry of Steel, Ministry of Mines, Ministry of Environment, Forest & Climate Change, Ministry of Commerce & Industry, NITI AAYOG, Ministry of

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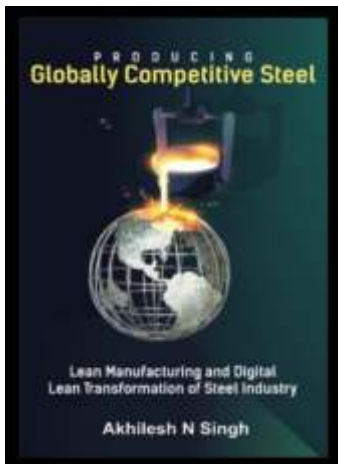


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Producing Globally Competitive Steel- the Toyota Way

In the current business environment, the two main challenges for the steel industries are; maintaining environment-friendly processes, and producing



globally competitive steel products.

On the environmental management front, several technological initiatives are being taken by steel industries across the globe on decarbonization, the use of green hydrogen in steel production, digitalization of processes, etc. Generally, the development of new steel technology takes a long time to transfer from the R&D labs to the shop floor and needs a big capital investment. From a short-term perspective, for the survival and growth of the business, every steel plant needs to enhance the global competitiveness of its products.

Customers evaluate global competitiveness mainly on 4 factors: Quality, Speed of delivery, Experience (before buying and during the use of

products), and Price (QSEP), which need to be continuously improved to remain in the market. There are two approaches to enhancing global competitiveness: modernization of production technology, and adopting a world-class production management system. Generally, steel companies are more dependent on improving global competitiveness by upgrading their technology, which requires huge capital investment and a relatively long gestation period.

Based on the last fifty years' experiences of the author, during the last five decades, there have been tremendous developments in steel technology, which has improved quality and productivity in a significant way, but very little change in the production management system.

Incidentally, the author got an opportunity to learn Toyota Production System in Japan and discovered that the quality, cost, and delivery of steel products can be significantly improved by adopting the Toyota Production System-Lean Manufacturing without any capital investment. Based on his three decades of steel production experience and two decades of Lean consulting in steel and other industries he has shared the approach through his latest



Akhilesh N Singh
Metallurgist & Lean Management Consultant,

book "Producing Globally Competitive Steel.

The objective of this paper is to explain how lean manufacturing can help the steel industry to enhance global competitiveness by improving its current management system and people competence.

Concept of Value and Waste

In the steel manufacturing process, we use 4Ms- Materials (including minerals, energy, air& water), Machines, Manpower, and Methods (Technology) as inputs to the process. During the transformation process, two types of activities are performed; "value-added" and "non-value-added". Value-added activities deliver good quality products, and non-value-added activities generate waste. Wastes consume resources without adding any value, increase costs, and reduce competitiveness. This concept of waste (Muda in the Japanese language) was recognized in automobile production by Toyota during post world war-II period and they focused on finding solutions to eliminate waste and became the global leader, now all kinds of industries including steel are trying to learn and adapt. Toyota's Production System or Lean Manufacturing focuses on improving process performance by detecting, eliminating, and preventing waste.

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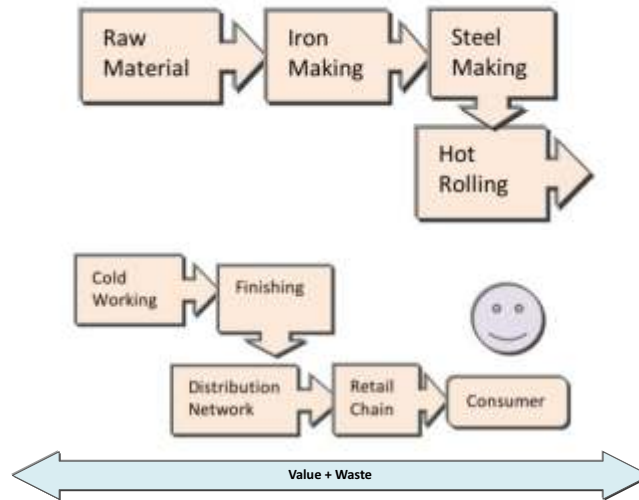
Analysis

The Lean approach to measuring Resource Efficiency

"Seeing as a whole" and "producing more from the less" are the basic



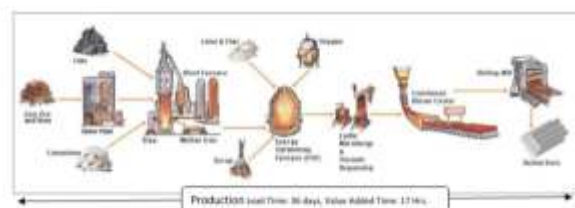
approaches of Lean. In a traditional management system business is managed through vertically isolated silos called departments or divisions, each department is working to attain its production targets without much concern for customer value. Lean manufacturing makes us see the steel industry as an extended single end-to-end value stream; begins with the procurement of raw materials, iron making, steel making, hot rolling, cold working/finishing, and distribution and ends with the delivery of steel to the consumer. For enhancing global competitiveness, customer value, and organization profitability, it is essential to accelerate the flow of material/WIP in the process without any interruption with the fastest velocity in the minimum possible lead time. But in reality, it does not happen due to various invisible/visible problems in the process. The real steel supply chain consists of the following main business processes:



In every process of the above supply chain, each step of the process performs two types of activities:

- **Value-added activities:** contributes to improving content, form, and utility of work in process, building quality in product, reducing cost, speeding up delivery, and improving throughput.
- **Waste** or non-value-added activities do not contribute to the creation of value. This includes incidental work also, which does not add value but is essential for the business.

In a typical steel plant, the actual value-added time required for dispatch of a ton of finished steel product, the time required for conversion of iron ore into saleable steel bars is 17 hours, whereas the same material has to travel 36 days' journey from raw



material yard to blast furnace, steel melting shop, continuous caster, hot rolling and finishing to shipping.

Production Lead Time: 36 days, Value Added Time: 17 Hrs.

From a Lean perspective, work-in-process undergoes value-added transformation for 17 hours only, whereas waiting and other non-value-added time during the entire process was 857 hours. The value-add ratio of the steel production process is around 2% only. But the material, machine, manpower, and infrastructure resources are blocked without creating any value 98% time. This may be an unbelievable figure for most steel industry professionals, but it is a reality. Such a long non-value-added time reduces competitiveness and increases the cost of production in form of inventory carrying cost, space cost, multiple handling cost, defects, rework, extra transportation, and other associated wasteful activities. The focus of Lean manufacturing is to reduce the non-value-added time, by eliminating waste.

The Lean approach to improving Production Cost

One of the most practical ways to improve cost competitiveness in day-to-day operations is compressing the lead time by reducing inventory using Just-In-Time and Kanban systems. This does not require any capital investment but is capable to save millions of rupees by improving the throughput of the process.

Just-In-Time (JIT) is a lean technique developed by Toyota aimed at reducing inventory and other waste by producing

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Analysis

only the right quantity of products at the right place at the right time. The goal of JIT is to minimize the slow-moving items in the production line based on the pull production system. The JIT system aims at regulating the flow of raw materials and works in progress needed in the production value stream.

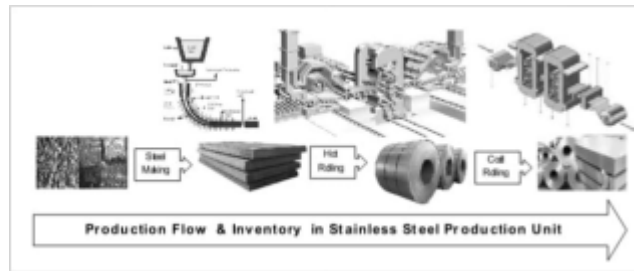
This system is for reducing the inventory at the minimum possible level resulting in a reduction in storage space, inventory-carrying cost, waste of machine-hours, man-hours, material handling time, and lower production cost. The operating method of the JIT system is 'Kanban'.

A Kanban is a card attached to the carrier or container of a lot used to match what needs to be produced in a workstation and what needs to be delivered to the next station. The JIT system is basically a "pull" system, which means that what needs to be produced in a particular workstation depends on what the next station needs. Ultimately the production is therefore regulated by end-customer orders. Kanban helps organizations control the rate of production by ensuring that materials are received only when required - when they are demanded by the customer.

How does JIT & Kanban work?

Let us take an example of a specialty steel company; Pacific Stainless Co. (Pasco), which is a producer

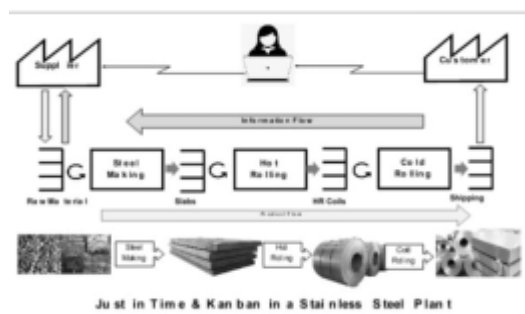
of cold-rolled coils of mainly three grades of stainless steel; Austenitic, Ferritic, and Martensitic. Cold-rolled coils are produced in a thickness range of 0.20 to 4.5 mm and maximum width of 1200 mm. Production involves three main processes: Steel Making (Slab), Hot Rolling (HR Coil), and Cold Rolling (CR Coil & Sheets).



The average daily sale is 1000 Metric Tons. Currently, It has a total inventory of Raw Materials, Slabs, HR Coils, and CR Coils in the quantity of 66,000 MT equivalent to 58 days of sale. In spite of the large inventory, the company's current order-to-delivery lead time varies between 28 to 40 days.

By applying JIT and Kanban systems, the company can comfortably reduce inventory level by more than 50% to support 29 days' production (33,000 MT) with a lead time of 2-6 days. The JIT production includes four supermarkets with a Kanban system.

A statistical analysis of



demand should be made and accordingly inventory of finished products and work-in-process should be maintained at four supermarkets. Based on the daily sales pattern of 1000 MT (average), the equivalent amount of finished product and WIP inventory should be replenished by the production of HR coils, and slabs.

In the JIT system, production and purchase activities are controlled backward starting from the shipping section, instead of forecast-based production planning. Every day after shipping 1000 MT (average daily sale) finished product, a Kanban card is sent to Cold Rolling Mill to produce and replenish 1000 MT Cold rolled products to Finished Goods supermarket. In the same way, the equivalent quantity of Hot Rolled Coils and Slabs should be produced and replenished in respective supermarkets. Raw material purchase ordering lot size should be reduced and the frequency of delivery of raw materials can be increased to reduce raw material inventory. Supermarkets control the minimum and maximum stock limits.

By adopting JIT and Kanban system working capital requirement for inventory can be reduced by more than 55% and overall production cost can be reduced by approximately Rs. 2000 per MT due to reduced inventory carrying cost. This is just a typical example for explaining the impact of JIT on production cost reduction, the exact impact can be calculated



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Analysis

after getting the actual data during Value Stream Mapping.

How to implement Lean manufacturing in a Steel Plant?

Lean Gurus recommend the following steps to implement Lean

and how of Lean Manufacturing through a structured lean awareness training program.

- **Diagnostic Study:** Resource efficiency and customer value in production value streams is reduced due to some

structured problem-solving technique to improve the flow and resource efficiency.

- **Lean Management System:** to sustain lean it is important to establish a Lean Management System and Lean culture to ensure continuous improvement of



Manufacturing in a steel company. A brief description of the implementation methodology is provided here.

- **Lean Awareness:** Lean transformation begins with a commitment to change the current way of production management to Lean management. This has to begin with the top Leadership of the organization. To build commitment it is essential that all senior management teams understand the why, what,

visible/invisible problems in value streams. Such problems are detected by a powerful diagnostic tool-value stream mapping. The steel production chain is configured into various value streams like Steelmaking, Hot Rolling, Cold Rolling, etc. Value Stream Mapping is used to detect problems adversely impacting resource efficiency.

- **Process Improvement:** Problems identified during value stream mapping are solved using the

products, processes, and people.

Along with improving the steel-making technology and environmental management system, the steel industry can improve global competitiveness by learning and implementing lean manufacturing, which does not require any capital investment. ■

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Tata Steel to merge 7 subsidiaries by FY24, says CEO T V Narendran

Tata Steel CEO and managing director TV Narendran said that the merger of 7 subsidiary companies with Tata Steel is expected to be completed in 2023-24 fiscal year, news agency PTI has reported. The seven subsidiaries to be merged with the company are Angul Energy, Tata Steel Long Products (TSPL), The Tinsplate Company of India, Tata Metaliks, TRF, Indian Steel & Wire Products, and Tata Steel Mining and S&T Mining Company. Earlier in September 2022, the board had approved a proposal to merge six of its subsidiaries into itself for greater synergies, higher efficiency and reduce costs. Replying to a question on the timeline for the merger, Narendran told PTI that, "We had already announced (merger of) 6 companies earlier. (Merger of) one more Angul Energy we announced recently."

However, the CEO added that, the completion of the merger depends on the regulatory processes including NCLT clearances, post which the process is expected to be completed in the next financial year.

"We are dependent on the speed at which we can go through our regulatory requirements," he told PTI.

When asked about plans of merging the recently acquired NINL into Tata Steel, the CEO said there are no such immediate plans.

"As per the terms of purchase with the government, the company is committed to running the new asset as a separate legal entity for three years...after that, we can decide what is best for NINL," he said.

Narendran also said Tata Steel will first work to complete the merger of these 7 entities before it plans for merger of more subsidiary companies into self.

Meanwhile, the company reported a surprise consolidated net loss of ₹2,224 crore for the third quarter ending 31 December, 2022 (Q3FY23). This is a decline of 76 percent from ₹9,572 crore profit posted in the corresponding quarter of last year. The steel production company's revenue from operations declined 6 percent to ₹57,083.56 crore for the period under review as compared to ₹60,783 crore in the year-ago period.

Earlier in an interview with *Mint*, the CEO said that pension adjustments, the need to build stocks in the Netherlands for a maintenance shutdown, and higher coal prices were the three key reasons for the worse-than-expected financial numbers for Tata Steel in the December quarter. Narendran added that said the worst is over for Europe and India, adding that high steel prices will sustain in the short to medium term.

Govt to initiate closure of SAIL's steel unit in Bhadravathi: MoS Finance

The government has decided to shut SAIL's loss-making Visveswaraya Iron & Steel Plant (VISP) at Bhadravathi in Karnataka, Parliament was informed on Monday. The government had originally planned for privatising VISP and had invited Expression of Interest (EoI) for selling SAIL's 100 per cent stake in the unit in July 2019.

However, in October last year, the government decided to scrap the strategic disinvestment plans of VISP due to low bidder interest.

In reply to a question in the Lok Sabha, Minister of State for Finance Bhagwat Karad said the shortlisted bidders had expressed inability to participate in the sale process of VISP.

"On account of old machinery, sub-optimal size, continuous losses and shutdown of blast furnace for a long time, it has been decided to initiate the process for closure of this unit," Karad said.

The Cabinet had in October 2016 cleared strategic disinvestment of SAIL's 100 per cent stake in VISP.

CM Jagan perform ground breaking ceremony for the steel plant in YSR district



Chief Minister laid the foundation stone for APHSL in 2019, at Sunnapuraalla Palle village. However, later, JSW came forward to set up the industry by promising an investment of Rs 8,800 crore in the project, involving the works of the first and second phases. (Image: aphighgradesteels.com)

Chief Minister Y.S. Jagan Mohan Reddy done the Bhumi Puja for the long-pending steel plant project in Sunnapurallapalle village of YSR district on February 15. This follows an offer from JSW Steel to invest Rs 8,800 crore in two phases for setting up the plant in the Jammalamadugu region.

As per the present plan, the work on the plant with a three-million-tonne capacity per annum and providing jobs to about 25,000 people would be completed in three years. A total of 3,295 acres have been acquired for the project in the Jammalamadugu area.



The YSR district administration has begun levelling the allotted land for the ambitious project. Kadapa MP Y.S. Avinash Reddy and Jammalamadugu MLA Sudhir Reddy visited the spot on Monday.

Steel prices rise 5% on higher export queries, improved domestic demand



Steel prices have witnessed a 5 per cent rise, sequentially, in the second week of February, with the price of benchmark hot rolled coils (HRCs) being at around ₹59,700 per tonne. Prices have increased by ₹2,900 over the last month. The February price hikes came after two similar ones were initiated in January, following a pick up in export orders and queries across markets such as Europe, UAE and Vietnam; better domestic demand because of restocking; and higher raw material prices. Imported steel prices to have moved up making them unviable.

According to Jayant Acharya, Group Managing Director, JSW Steel, the country's largest steel producer by volume, things are looking up on the pricing side. "You are also seeing the prices increase from January 1 in some of the products from mid-January. You will see this probably play out in this quarter which is seasonally a better quarter," he said during the post-earnings call. Prices of steel-making raw materials like iron ore and coking coal have been showing an uptrend while NMDC hiked iron ore prices by up to ₹500/tonne. The price of lump ores was raised by ₹300/tonne and fines by ₹500/tonne, effective January 28. Weekly average prices of imported hard coking coal (premium HCC, Australian origin) stood at \$340/tonne for the January 23–28 week, as per a report by research firm, *SteelMint*. "In the last few weeks, we have seen the international prices move up. On a dollar basis, I think China moved up by about \$100 (per tonnes). We have seen European CFR also move up in the range of \$140-plus. And we see the reflection of that in India," Acharya had said. Improved export demand. Trade sources told *businessline* that export offers have seen an uptick too. In January, although India was a net importer, the difference between exports and imports was the lowest so far. Exports in January improved 33 per cent over December to 0.59 million tonnes (mt). According to a *SteelMint* report, Indian offers to Europe rose by \$20/tonne; while the HRC offers to Vietnam rose by \$25-30/tonne to around \$680-685/tonnes CFR(cost and freight) against \$650-660/tonnes seen prior to the

holidays. Offers to the UAE were up by \$35-40/tonne to \$720/tonne compared to the last quoted price of \$680-685/tonne. According to TV Narendran, MD and CEO, Tata Steel, Indian steel prices are expected to move higher "based on improved expectations about the Chinese demand and the sustained government spending on infrastructure in India". "The raw material costs are likely to remain range-bound. And the fourth quarter is also seasonally the stronger quarter in terms of deliveries and we are looking to leverage the momentum," he said.

Iron ore, steel prices dip on fragile China demand recovery

Chinese ferrous futures fell on Monday, as mounting steel stocks and rising portside iron ore inventory indicated a slow recovery in demand, even as latest indicators pointed to a rebounding economy. The most-traded May iron ore on China's Dalian Commodity Exchange DCIOcv1 ended daytime trade 2.2% lower at 841.50 yuan (\$123.23) a tonne. On the Singapore Exchange, the steelmaking ingredient's benchmark March contract SZZFH3 was down 3.5% at \$120.35 a tonne, as of 0702 GMT. On the Shanghai Futures Exchange, rebar SRBcv1 shed 1.6%, while other steel benchmarks also dropped. Hot-rolled coil SHHCcv1 dipped 1.4%, wire rod SWRCv1 lost 1.7%, and stainless steel SHSScv1 slipped 0.5%. "Industrial metals markets will need to wait for February and March economic data to get a true sense on the health of the Chinese economy," Navigate Commodities Managing Director Atila Widnell said. Traders were cautious despite data showing new bank loans in China jumped more than expected to a record 4.9 trillion yuan (\$717.21 billion) in January, while new home sales in 16 Chinese cities rose for the second straight week.

"The profits of steel mills have not improved," Huatai Futures analysts said in a note. "The continuous increase in inventory will cause short-term adjustments in finished product prices." Steel inventories held by Chinese traders, which have been steadily rising since late December, increased by 1.5 million tonnes over Feb. 3-9, according to Mysteel consultancy's latest stocks survey. Meanwhile, portside iron ore inventory climbed last week to 138.5 million tonnes, the highest since mid-September, SteelHome consultancy data showed. Other Dalian steelmaking inputs were also weaker, with coking coal DJMcv1 down 2.9%, while coke DCJcv1 dropped 2.7%. "Higher-frequency construction steel trading volumes alluded to emerging shoots of a fragile recovery in steel demand last week," Widnell said. "If this trend extends for a second consecutive week, this could also reignite the optimism around the reopening narrative."



Steel scrap recycling faces GST hurdles

A reduction in the GST rate on steel scrap from 18 per cent to 5 per cent will substantially reduce the cash flow burden from the supply chain and discourage the generation of fake input invoicing.

The National Steel Policy, 2017 (NSP-2017) aims to increase crude steel capacity to 300 MT by 2030-31, with the secondary steel sector expected to contribute 35-40 per cent of total production. The ferrous scrap market, currently worth Rs 10,000 crore, is set to soar to Rs 35,000 crore by 2030 as the industry shifts towards scrap-based steel production. However, the industry is facing a peculiar situation under the goods and services tax (GST) regime as steel scrap is taxed at 18 per cent GST. The peculiarity lies in the complex supply chain of procuring steel scrap, an important raw material for the industry, from different dealers, both registered and unregistered ones.

There are two types of steel scrap – 'old scrap' generated from white goods and automobiles discarded by households or industry and 'new scrap' generated from manufacturing processes. The old scrap of households is generally bought by smaller unregistered dealers, who in turn sell it to larger registered dealers, without levying any GST. On the other hand, the new scrap, generated during the manufacturing process is bought both by unregistered dealers or by registered dealers from the manufacturing units. Now, the registered dealers must charge 18 per cent GST when they further sell to the steel-producing industry and pay the same to the government. Where the new scrap is supplied by a registered person to a registered dealer, who further sells it to the registered steel manufacturer, all parties charge GST at each stage and there is a free flow of input credit in the entire chain. The problem arises when scrap is purchased from unregistered dealers, as in absence of sufficient input credit (on scrap purchased from unregistered dealers), registered dealers have to pay GST in cash on their outward supply.

Dhanlaxmi Iron Industries intends to set up a new mild steel round bars manufacturing unit with a capacity of 1.44 lakh tpa at Bonthapally of Sanga Reddy in the Medak district of Telangana.

The proposed unit will span over 5.44 acres of land parcel and create employment opportunities for roughly 450 individuals.

According to the updates available with Projects Today, Dhanlaxmi Iron Industries is awaiting environmental

clearance for the project.

The company intends to commence the work on the project by mid-2023. Besides, the contractor and the machinery supplier are yet to be finalised.

SAIL records best-ever monthly production in January 2023

Crude Steel production shows impressive growth over the previous best
Steel Authority of India Limited (SAIL) – a maharana PSU under the Ministry of Steel, has recorded the best-ever monthly production in January 2023. Crude Steel production of 1.72 Million tonnes (MT) during January 2023 is the best-ever monthly performance registering an impressive growth over the previous best achieved in March 2022. SAIL also achieved the best-ever monthly production of hot metal and saleable steel at 1.8 MT and 1.61 MT during this month, registering growth over the previous best recorded in March 2022.

German steel producer HKM orders customized relining machine

German steel producer Hüttenwerke Krupp Mannesmann (HKM) has ordered an LD converter (BOF) relining machine from Primetals Technologies. It will replace a 30-year-old and outdated machine at HKM's steel plant in Duisburg, Germany. Startup is scheduled for June 2024. HKM's decision to award the contract to Primetals Technologies was based mainly on the tailormade design, which is optimized for HKM's needs, and successful recent relining machine projects with features such as staff elevators and tailormade solutions for brick logistics. Primetals Technologies will engineer, manufacture, implement, and provide advisory services for the installation and startup of the new relining machine. Improving occupational health Primetals Technologies did a comprehensive study to find the best relining solution for HKM, one that would meet their needs in terms of state-of-the-art ergonomics, staff access via a separate elevator, and an automated working platform. As part of the solution, personnel working inside the converter vessel will no longer need to lift the bricks. This is thanks to a semi-automatic system in which two magazine lifts transport the bricks from the depalletizing station and into the converter. A brick manipulator, which is an arm-like robotic device for handling materials, will then automatically discharge the bricks from the magazine lifts onto an extendable roller table. With this logistics concept, the bricks are pushed into their final position without the workers having to lift them. Additionally, a staff elevator ensures that the personnel have easy access to the relining platform.



FIRST PLATE ROLLED BY NUCOR STEEL BRANDENBURG ON DANIELI PLATE MILL

The plate/Steckel mill complex for quality plates up to 168" and coils up to 125" wide.

The project of the new 1.2-Mstpy complex at Brandenburg, Kentucky, along the Ohio River, is in progress, and according to schedule the first plate was



rolled at end 2022.

Supported by advanced automation and featuring two heavy-duty stands, the Danieli mill will allow Nucor Steel to produce thermo-mechanical rolled plates up to 168" wide and coils up to 125" wide. An EVO 5 hot leveler designed for two different types of cassettes, and a plate finishing and shearing line for the handling and cutting of 250-ft mother plates, will complete the mill that soon will become the new benchmark plant of the sector.

Also, the meltshop at Brandenburg features Danieli EAF Q-Melt and Zero Man Turn Around, LMF and VD twin-stations ensuring precise chemistry and temperature control, whilst minimizing transformation costs.

From Nucor Steel announcement:

"Congratulations to our more than 400 teammates for achieving this important milestone and executing one of the safest mill start-ups in Nucor history, while also delivering the project on time and on budget," said Leon Topalian, Chair, President, and Chief Executive Officer of Nucor Corporation. "We are looking forward to supplying not only the highest quality steel but also the most sustainable plate products in the world for our nation's military, infrastructure, heavy equipment, offshore wind, and other markets."

Nucor Steel Brandenburg will be among only a few mills globally - and the only mill in the United States - capable of manufacturing at scale the heavy gauge plate used in monopile foundations for offshore wind towers. As a result, it will be a critical part of the supply chain for the continued development of our nation's offshore wind power infrastructure.

The new mill is located in the middle of the largest steel plate-consuming region in the country and will be able to produce 97% of plate products consumed domestically. It is also the first steel mill in the world to pursue certification under LEED v4 ("Leadership in Energy and Environmental Design"), which is more stringent than previous LEED rating systems and provides a globally recognized framework for sustainability achievement.

"RINL kicks off New Year with stellar performance in January, 2023 -Records galore at RINL"

Major achievements by RINL, Visakhapatnam Steel Plant during Jan'2023 are:

Best performance for Any Month since inception Production of 2,33,985 Tons of Hot Metal from Blast Furnace -1(Godavari), 64,885 tons of products from Structural Mill, 1,75,094 tons of finished steel from expansion units (Wire rod mill-2, Special Bar mill & Structural Mill) is the unit wise BEST Performance achieved for ANY MONTH, since inception registering an impressive growth of 25%, 81% and 29% respectively over the corresponding period last year (CPLY).

On the Technical Parameters front, a Blast furnace productivity of 2.22 tons (of Hot Metal) /day/cum by BF Shop (both blast furnaces 1 & 2 together) and a Blast furnace productivity of 2.26 tons (of Hot Metal) /day/cum by Blast Furnace -1 achieved during the month of January, 2023 are the BEST performance achieved for ANY MONTH, since inception registering an impressive growth of 25% and 24% respectively over the corresponding period last year (CPLY).

Best performance for Any January ,since inception Similarly, the Production of 2,23,045 Tons of Hot Metal from Blast Furnace -2(Krishna), 59,024 tons of Wire Rods from Wire Rod Mill -2 and 3,95,830 tons of finished steel during January, 2023 are the BEST PERFORMANCE achieved for ANY January month, since inception.

On the Technical Parameters front, a BF Productivity of 2.19 tons(of Hot Metal) /day/cum achieved in January, 2023 by Blast Furnace-2 is the BEST performance achieved for ANY JANUARY month, since inception registering an impressive growth of 20% over the corresponding period last year(CPLY)

In addition to the above, the following are the significant achievements achieved by RINL, Visakhapatnam Steel Plant during January, 2023.

- 1) Hot Metal production of 16,250 Tons achieved on 20th Jan'23 is the Best Daily production since inception from any two furnaces.
- 2) Hot Metal production of 4,57,030 Tons achieved in Jan'23 is the Best Monthly production since inception, from any two Blast furnaces.
- 3) Hot Metal production of 8,100 tons achieved from Blast Furnace-1 on 15th Jan'23 is a New Day Peak. (Best daily production from BF-1)
- 4) Finished Steel production from Expansion units (1,75,094 tons) in Jan'23 crossed its rated capacity for the first time.



Two-wheeler sales not matching pace of PVs, three-wheelers: SIAM

The growth in two-wheeler sales is not keeping pace with the sales growth logged by passenger vehicle and three-wheeler segments, said a top official of Society of Indian Automobile Manufacturers (SIAM).

The growth in two-wheeler sales is not keeping pace with the sales growth logged by passenger vehicle and three-wheeler segments, said a top official of Society of Indian Automobile Manufacturers (SIAM).

Referring to the January 2023 sales data of automobile manufacturers, Vinod Aggarwal, President, SIAM said: "Better consumer sentiments is driving demand for passenger vehicles. Three-wheeler segment has gained traction compared to the past two years, though they are still to reach the pre-Covid levels. The rate of growth of two-wheelers in the recent year has not kept pace with the growth in the other segments."

According to SIAM, last month the passenger vehicles (cars, utility vehicles and vans) makers sold 2,98,093 units (2,54,287 units sold in January 2022) while sales of three-wheelers shot up to 48,903 units (24,178 units). The two-

wheeler industry sold a total of 11,84,379 units last month (11,40,888 units).

Commenting on January 2023 sales data, Mr Vinod Aggarwal, President, SIAM said, "Better consumer sentiments are driving demand for Passenger Vehicles. Three-Wheeler segment has gained traction compared to the past two years, though they are still to reach the pre-Covid levels. The rate of growth of Two-wheelers in the recent year has not kept pace with the growth in the other segments. Positive announcements at the Union Budget should help in continuing with the overall growth momentum."

Commenting on January 2023 sales data, Mr Rajesh Menon, Director General, SIAM said, "Passenger Vehicles again saw highest ever sales in the month of January and for the first time, it has crossed 3 million sales mark in 10 months, from April to January period. Sales of L5 category Three-Wheeler more than doubled in January 2023, compared to January 2022, while Two-Wheelers posted a marginal growth of just around 4% in the month of January 2023, compared to January 2022."

SIAM							
Segment wise Comparative Production, Domestic Sales & Exports data for the month of January 2023							
Category Segment/Subsegment	Production		Domestic Sales		Exports		
	January		January		January		
	2022	2023	2022	2023	2022	2023	
Passenger Vehicles (PVs)*							
Passenger Cars	1,58,891	1,87,543	1,26,693	1,36,931	25,226	31,002	
Utility Vehicles (UVs)	1,40,636	1,75,357	1,16,962	1,49,328	15,505	24,527	
Vans	10,807	13,040	10,632	11,834	50	22	
Total Passenger Vehicles (PVs)	3,10,334	3,75,940	2,54,287	2,98,093	40,781	55,551	
Three Wheelers							
Passenger Carrier	58,941	60,016	16,592	37,061	37,910	22,995	
Goods Carrier	7,571	8,807	5,868	8,346	1,241	85	
E-Rickshaw	1,400	4,376	1,416	3,188	-	-	
E-Card	297	378	302	308	-	-	
Total Three Wheelers	68,209	73,577	24,178	48,903	39,151	23,080	
Two Wheelers							
Scooter/ Scooterette	3,84,864	4,04,458	3,61,299	3,76,035	33,369	30,256	
Motorcycle/Step-Throughs	10,68,887	10,12,291	7,43,804	7,71,621	3,41,453	1,89,439	
Mopeds	42,313	37,727	35,785	36,723	144	408	
Total Two Wheelers	14,96,064	14,54,476	11,40,888	11,84,379	3,74,966	2,20,103	
Quadricycle	54	371	1	72	49	306	
Grand Total	18,74,661	19,04,364	14,19,354	15,31,447	4,54,947	2,99,040	
* BMW, Mercedes, Tata Motors and Volvo Auto data is not available							
Society of Indian Automobile Manufacturers (13/02/2023)							

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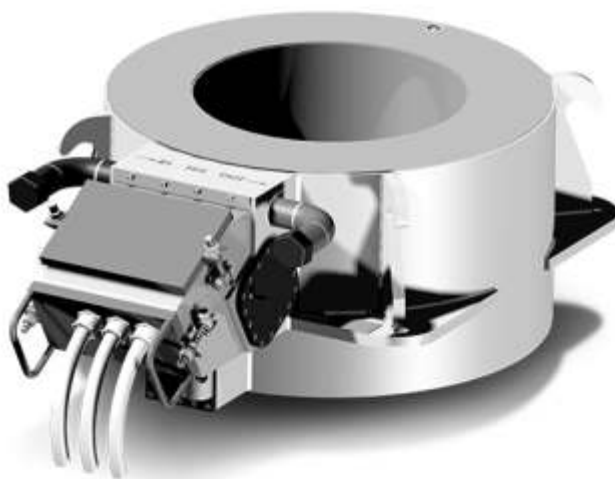


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